

## **FUSION PROTEINS COMPRISING HIV-1 TAT AND/OR NEF PROTEINS**

This application is a 371 of PCT/EP98/06040, filed September 17, 1998, which claims priority from GB application 9720585.0, filed on September 26, 1997

The present invention relates to novel HIV protein constructs, to their use in medicine, to pharmaceutical compositions containing them and to methods of their manufacture.

In particular, the invention relates to fusion proteins comprising HIV-1 Tat and/or Nef proteins.

HIV-1 is the primary cause of the acquired immune deficiency syndrome (AIDS) which is regarded as one of the world's major health problems. Although extensive research throughout the world, has been conducted to produce a vaccine, such efforts thus far, have not been successful.

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Non-envelope proteins of HIV-1 have been described and include for example internal structural proteins such as the products of the *gag* and *pol* genes and, other non-structural proteins such as Rev, Nef, Vif and Tat (Greene et al., New England J. Med, **324**, 5, 308 et seq (1991) and Bryant et al. (Ed. Pizzo), *Pediatr. Infect. Dis. J.*, **11**, 5, 390 et seq (1992).

HIV Nef and Tat proteins are early proteins, that is, they are expressed early in infection and in the absence of structural proteins.

According to the present invention there is provided a protein comprising

- (a) an HIV Nef protein or derivative thereof linked to either (i) a fusion partner or (ii) an HIV Tat protein or derivative thereof; or
- (b) an HIV Tat protein or derivative thereof linked to either (i) a fusion partner or (ii) an HIV Nef protein or derivative thereof; or
- (c) an HIV Nef protein or derivative thereof linked to an HIV Tat protein or derivative thereof and a fusion partner.

By 'fusion partner' is meant any protein sequence that is not Tat or Nef.